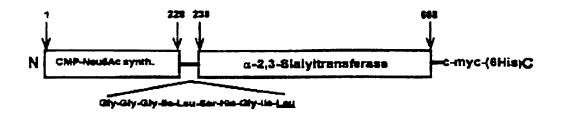


Figure 1:



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Figure 2

	ATGC	AA.	AAC	CAC	GTT.	ATC	AGC	TTA	GCT	TCC	3CC	GCA(GAA	CGC	AGG	GCG	CAC	CAT	rgcc	GAT	
1	TACG		ГТG	GTG	CAA	TAG	TCG	AAT	CGA		CGG	CGT	CTT	GCG'	TCC	CGC	GTO				60
		_																			
61	ACCT			+			-+-			+				+			-+-			+	120
	TGGA T									QTC.						TAC M	_		_	R	-
121	CTGG																				180
	GACC			CGT	TAC	CGC	CTT	GAG	CAG		CCG.	AAC	AGC	CGC	GTG	GGG	ATA		CTCC	CCT	-
181	GTGG																				240
	CACC	TT:	гтт	CGG	ACG.	AAA	TAC	TCG	GTG	CGG	CAT	AAC	ACC'	TTC	GTC	CGT	'AAC	CTC		CCA	240
241	CTGC																				300
	GACG																				
			Y							D								Ε	K	F	-
301				+			-+-			+				+			-+-				
	GAAC L	GG(A		CTG D		ACC W	GAC L			GCG/ R						CGG A	_		V V	GCG R	-
361	TTGG																				420
	AACC L	TT	rgc'	TAC	AAA'	TAC	GTG	CAG	GAC'	TGG	AGC(GG#	AGG(CCG	CAC	CGC	CTA	ATC	ACC	CCC	-
421																					
421	CGCG																				480
421	GCGC			+ GGC		 AAC	-+-	TCG	 CTT	+-	ACC(CCC	rgc	+ CGC(CCG	 ATA	-+- DAT.	TAA	AGG	+ GCT	480
	GCGC R AAAG	GG <i>I</i> A	AAA F	+ GGC P CGG	GAC	AAC L TTC	- + - CTT E CTG	TCG S S	 CTT(E AGG'	+- GTGA H	ACC(CCCI G	TGC	H CGCC A	CCC	ATA Y GAA	TAG	TAA I	AGG S SCAC	GCT R	_
	GCGC R AAAG TTTC	GGA A CGA GCT	AAA F	+ GGC P CGG + GCC	GAC L TTT	AAC L TTC AAG	-+- CTT E CTG -+- GAC	TCG S S GAC CTG	CTTC E AGG'	GTGA H TTT(ACCO W GCCO	GCC	TGCC T CTGC	HOUSE	CCG G CCC	ATA Y GAA 	TAG	TAA I GCTG	AGG S CAC	GCT R	_
481	GCGC R AAAG TTTC K	GGA CGA GCT A	AAAC F ATGC ATGC M	+ GGC P CGG + GCC R	GAC. TTT AAA. F	AAC L TTC AAG F	-+- CTT E CTG -+- GAC L	TCG S GAC. CTG D	CTTC	+- GTGA H TTT(+- AAA(F	ACCO W GCCO CGGO A	GCCI GCCI GCCI GCCI A	T T CTG(SAC(L	HOUSE P	CCG G CCC CCC P	ATA Y GAA CTT E	TAG TAG GGG -+- CCC G	GAC	SCAC GCAC GTG H	GCC R CCC + GGGG P	- 540 -
	GCGC R AAAG TTTC K GTCG	GGA CGA GCT A	TACC M	+ GGC P CGG + GCC R ATG. +	GAC L TTT AAA F ATG	AAC L TTC AAG F TTC	CTG(CTG(C	TCG SAC. CTG D	CTT(E	TTTCC	ACCO W GCCO A BACA	GCCT GGCCT GCCGGC A	TGCC TCTGC SACC L	H CGCC A CCGC H GGCC P GGAZ H CCTT	CCG G CCCC EGG P	ATA Y GAA CTT E CCG	GGG GGG GGTT CAA	GAC	AAGG S GCAC GCAC H CCAG	GCCC + GGGG P GCTC +	- 540 -
481	GCGC R AAAG TTTC K GTCG CAGC	GGA A CGA GCT A ATO	AAAC FACC M	+ GGC P CGG + GCC R ATG. + FAC	GAC. L TTT AAA. F ATG' TAC.	TTC AAG F TTC AAG F AAG F	- + - CTT' E CTG(- + - GAC(L AGC(- + - TCG(S	TCG S GAC. CTG D GAT CTA	AGG F TCC R TTT TTT	GTGA H TTTC +- AAAC F TTCC +- AAGC F	ACCO W GCCO A BACA DTGT	GCCT GCCC A AGGC R	TGCC TCTGC EAACC LCTTC	CCGCC A CCGCC F F EGAA F CCTT	CCG G CCC EGG P ATG TAC	ATA Y GAA CTT E CCG GCG	GGG GGTT -+- CAA	GAC L ACC	AGG S GCAC GTG H CCAG GTC	GCCC + GGGG P CCTC +	- 540 -
481	GCGC R AAAG TTTC K GTCG CAGC V	GGA A CGA GCT A A TCC D	AAA(FACCTG/AACCT	+ GGC P CGG + GCC R ATG + FAC M	GAC. TTT' AAA. F ATG' TAC. M	TTC AAG F TTC AAG F GCC	CTGC CTGC C+- GACC L AGCC TCGC S	GAC. CTG' CTA. CTA. CTA.	AGG' F CTGG	GTGA H TTTC +- AAAC F TTCC +- AAGC F	ACCO W ECCO A EACA EACA D	CCCI G G G CGGC A AGGC R	GACCE E	CCGC A CCGC P GGAA CCTT G	CCG, G CCCC EGGC P ATGC M	ATA Y GAA CTT E CCG F GAC	GGG GGG GTT CAA V	GACC	AGG S GCAC GTG H CCAG GTC Q	GCC GGG P CCTC + GAG L GCA	- 540 - 600
481 541	GCGC R AAAG TTTTC K GTCG CAGC V AATC	GGA A CGA GCT A A TCC D	AAA(FACCTG/AACCT	+ GGC P CGGG + GCC R ATG. H M	GAC. TTT' AAA. F ATG' TAC. M TGCC	TTC AAG F TTC AAG F CGG	CTGC CTGC C+- GACC L AGCC TCGC S	GAC. CTG' CTA. CTA. CTA. CTA. CTA.	AGG' F CTGG	GTGA H TTTC +- AAAC F TTCC +- AAGC F	ACCC W GCCCGGC A AGACA D	GCCI GCCI GCCI GCCI A AGGCI R	TCAAGT	CCGC A CCGC P GGAA CCTT G	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	ATA Y GAA CTT E CCG P GAC CTG	-+- TAG I GGG G-+- CCC G GTT -+- CAA V CAA -+- GTT	GCTGC C AACCC	AGG S GCAC GTG H CCAG GTC Q	GCC GGG P GCTC + GAG L GCA	- 540 - 600
481 541 601	GCGC R AAAG TTTC K GTCG CAGC V AATC TTAG N	GGA A CGA GCT A ATO CCO CCO GGGO P	TACC M CTGA SACC L GCCC A	+ GGC P CGGG+ GCC R ATG ATG M FTG' L CTG	GAC, L TTTT AAAA F ATG TTAC, M TTGC ACG C ATC	TTC AAG F TTC AAG F CGG A	CTGCCAACCCACCCACCCACCCACCCACCCACCCACCCAC	GAC. CTG. D GAT. CTA. D GAG. E GAG.	AGGGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	TTTCC F TTTCC F TTTCC F TTTCC F TTTCC F TTTCC F TTTCC TTTC TTTCC TTTC TTTT TTTC TTTC TTTC TTTC TTTT TTTC TTTC TTTC TTTC T	GCCCGGGCAACATGAACATGAACATGAACATGAACATGAACATGAACATGAACATGAACATAACATGAACATAACATGAACATGAACATAACATAACATAACATAACATAACAT	GCCCA GCCCGGCA AAGGCCA RCCCGGGA AAACC	CTGC T CTGC L SAAC E AAGT K	HODGE CONTROL	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	ATA Y GAA CTT E CCG P GAC GAC CTG	TAG I GGG G-+- CCC G GTT -+- CAA V CAA -+- GTT Q	GCGC	AGG SGTG H CCAG Q ZAGC TTCG STCG	GCC R CCC GGG P CCTC GAG L GCA CGT A	- 540 - 600 - 660
481 541 601	GCGC R AAAG TTTTC K GTCG CAGC V AATC TTAG N TTGG AACC	GGA CGA A ATO CCO GGGO P	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	+ GGC P CGGG R ATG. ATG. M ITTG L CTG. L	GAC, L TTTT AAA, F ATG ATG M TTGCC	TTC AAG F TTC AAG F GCC GGG A GAA	CTGGCACCACCACCACCACCACCACCACCACCACCACCACCA	GAC. CTG. GAT. CTA. D GAG. CTCCE	AGGGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	TTTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	ACCCGGGGA ACCCTGC ACCTGC ACCCTGC AC	GCCCCGGCAAAGGCCAAAGGCCAAAAGGCCAAAAGGCCAAAAGGCCAAAAACCCAAAAACCCAAAAACCCAAAAACCCAAAAACCCAAAA	rgcc T T E E AAGT K K	FTTTC	CCGA G CCCCC P ATGC P P CACC H CACC H	GAA CTT E CCG P GAC CTTG D	TAG I GGG GTT -+- CAA V CAA -+- GTT Q AGG -+-	GCTC GCTC CGCC L TTGC C AACC C AACC C C C C C C C C C C C C	AGG SGTG H CCAG QCAG CTCG QCAG CTCG	GCCC GGGG P CTC GGA L GCA TCC	- 540 - 600 - 660
481 541 601 661	GCGC R AAAG TTTC K GTCG CAGC V AATC TTAG N TTGG AACC L CCCG	GGA ACCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	ATGO M GCC AGCC A AGCC A AGCC S S	+ GGC P CGGG P CGGG R ATG. ATG. H FAC L CTG. L ACA'	GAC. L TTTT AAAA. F ATG' M TTGCC C ATCCC ATCCC ITAGG	TTC AAG F TTC AAG F GCC A GAA GAA GAA A GAA A A A A A A A A	-+- CTT' E CTGG -+- GACG TCGG S CAAGG -+- GTGG H CACG	GAC. CTG GAT CTA D GAG GAC CTC CTC CTC CCTC CCTC	CTTCCAR RTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	TTCCCCATTCCCATTCCCATTCCCATTCCCATTCCCATTCCCATTCCCATTCCCATTCCCATTCCCATCAT	GCCCGGGGAACATATATACATATACATATACATATACATATACATATATACATATACATATACATATACATATACATATACATATACATATACATATATACATATATACATATATACATATATACATATATATACATATATACATATATATATACAT	GCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	CTGC T CTGC L SAACC E AAGT K CCGCA	FOR THE STATE OF T	CCGCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	Y GAA CTT E CCG P GAC CTG CTG CAA CAA CAA CAA CAA CAA CAA CAA CAA CA	-+- TAG GGG -+- CCC G GTT -+- CAA V CAA -+- GTT Q AGG TCCC R	GCTG GAC L TGC C AACC C AACC R C C C AACC R C C C C C	GCAG GCAG GCAG GCAG GGTC GGTC GGTC GGTC	GCCC+ GGGG P CTC GAG L GCA+ AGG TCC AAGG S	- 540 - 600 - 660 - 720
481 541 601 661	GCGC R AAAG TTTC K GTCG CAGC V AATC TTAG N TTGG AACC L	GGAAATO	ATGO TACO M CTGA CCGGA AGCO S	+ GGC P CGGG R ATG. ATG. FAC' M CTGG L CTG. ACA' L ACA'	GAC. L TTTT AAAA F ATG TTAC. M TTGC C ATCC ATCC ATCC ATCC ATCA AAAA	TTC AAG F TTC-AAG F GCC GA GAA CTT E AAAA	-+- CTT' E CTGGAC' -+- GAC' -+- TCGG GTT' Q CACG' H CACG'	GAC. CTG. D GAT. CTA. D GAG. CTG. CTG. CTG. CTG. CTG. CTG. CTG. CT	AGG' R FTT' CTGG CTGG CGCGCR R	TTTCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	GCCCGGGCAACAACAACAACAACAACAACAACAACAACAA	GCCA AAGGCA AAGGCA RGCCA AAGCA AACCA N	CGCA AGGA CGCA K CGCA R CGCA R AGGA AGG	FTTC K ACCA	CCCG GCCCC GCCCC PATGC P	GAA CTT ECG CCG PCTG CTG CTG CTG CTG CTG CTG CTG	-+- TAG GGG -+- CCC G GTT -+- CAA V CAA GTT Q AGG -+- TCC R AGC TCC	GTGC GAC C CACC CAACC CAACC CAACC CAACC CAACC CAACC CAACC CAACC	GCAC GCAC GCAC GCAC GCTC GCTC CCAC GCTC CCAC CCA	GCC PCTC GGGG PCTC GAG LCTC GAG LCTC GAG CCTC AAGG SAGG	- 540 - 600 - 660
481 541 601 661 721	GCGC R AAAG TTTC K GTCG CAGC V AATC TTAG N TTGG AACC L CCCG GGGC P	GGA ACCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	AGCCGGAAACCCGGAAACCCGGAAACCCGGAAACCCGGAAACCCGGAAACCCCGGAAACCCCGGAAACCCCGGAACCCCGAACCCCGAACCCCGAACCCCGAACCCCGAACCCCGAACCCCAACCCCAACCCCAACCCCAACCCCAACCCCAACCCC	+ GGC' P CGGG' + GCC. R ATG. H FAC' M FTG' H GAC' T GCA' T	GAC. L TTTT AAAA F ATG' TTACA M TGCCC ATCC TTAGG I TTTTAGG F CAAAG F CAAA	TTC AAG F TTC AAG F GCC CGG A GAA CTT K AAG AGG	-+- CTTT E GACGACACACACACACACACACACACACACACACACACA	GAC. CTG. GAT. CTA. CTA. CTC. CTC. CTC. CTC. CTC. C	AGG' R TTT' AAAA' F CTGGC CGCC R CTGGC L CGCC L CAGG	- + + + + + + + + + + + + + + + + + + +	GCCGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG	GCCI AAGGCA AAGCCA AACCA	CTTGA	HORSE TO TO COMMENT OF THE COMMENT O	CCCG. GCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	TAAA	-+- TAG G-+- CCC G GTT CAA CCAA GTT Q AGG -+- TCC R AGC -+-	GCTC GCTC CGCC L TTGC AACC C AACC TTTG R	GCAC GCAC GCAC GCAC GCTC GCTC CCAC GCTC CCAC CCA	GCC FCCC PCCTC GGG PCCTC GAG LCCCT ACCT ACCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT AC	- 540 - 600 - 660 - 720
481 541 601 661 721	GCGC R AAAG TTTC K GTCG CAGC V AATC TTAG N TTGG AACC L CCCG GGGC P GAAA	GGA A CGA A TCGA A TCGA CCGA CCGA CCGA CCGA CCA CCGA CCA CCA	ATGO M CTGA BACC CTGA ACC S S ACC N N CTGC	+ GGC P CGGGP GCC R ATG. FAC' M FTGGAC L CTG. L ACA' + FAC' T T CGGG T CGGGC T CGGGC T CCGGC T CCGC T CCC T C CCC T C CCC T C	GAC. L TTTT AAAA F ATG' TTAC. M TTGCO ATCO ATCO ATCO ATCO AAG' F CCAAA	TTC AAAG F TTC AAAG F GCC AA GAA CTT E AAA CTT K AAG AGG A	CACCOCCACCACCACCACCACCACCACCACCACCACCACC	GAC. CTG. CTA. CTA. GAG. CTC. CTG. CTG. CTG. CTG. CTG. CTG. CT	CTGCCAAAAAAAAAACCCCCCCCCCCCCCCCCCCCCCCC	TTCC CATTL STAM H CTCC F CATTL STAM H CTCC I CTC I CTCC I CTC I CTCC I C	GCCCGGGCAACACACACACACACACACACACACACACAC	GCCI AAGGCAAAGCAAAACAAAACAAAACAAAACAAAAC	CCCTTCA	CCGCC A CCGCC P GGA F CCTTC G F TTTC K ACCA TTTC TTTC TTTC TTC TTTC TTT	CCCG G CCCCC G CCCCC P CACCC M CACCC M CACCC M CACCC M CACCC M CACCC M CACCC M CCCC M CCCCC M M CCCC M CCCC M M CCCC M M CCCC M M CCCC M M CCCC M M CCCC M M CCCC M M M CCCC M	GAA CTT E CCG GGC P GAC CAA CAA CAA CAA CAA CAA CAA CAA CAA	-+- TAG G-+- CCC G GTT CAA CCAA GTT Q AGG -+- TCC R AGC -+-	GCTC GCTC CGCC L TTGC AACC C AACC TTTG R	CCAG CCTG CCTG CCTG CCTG CCTG CCTG CCTG	GCC FCCC PCCTC GGG PCCTC GAG LCCCT ACCT ACCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT ACCCT AC	- 540 - 600 - 660 - 720

Figure 3

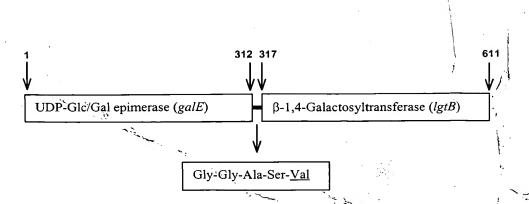


Figure 4

- A. 5' primer for amplification of galE for insertion into pCW at the BamHI site
- 5' GGGACAGGATCCATCGATGCTTAGGAGGTCATATGGCAATTTTAGTATTAGGTGGAGC 3' BamHI Met
- B. 3' primer for amplification of galE for fusion with lgtB insertion into pCW
 - 5' GGGGGG**GCTAGCGCCCC**TCCTCGATCATCGTACCCTTTTGG 3' NheI Gly Gly
- C. 5' primer for amplification of *lgtB* for fusion with the 3' end of *galE*.
 - 5' GGGGGG**GCTAGCGTG**CAAAACCACGTTATCAGCTTAGC NheI Val
- D. 3' primer for amplification of *lgtB* for fusion with *galE* and insertion into pCW
 - 5' GGGGGGGTCGACCTATTATTGGAAAGGCACAATGAACTGTTCGCG SalI
- E. Junction region of the galE-lgtB fusion